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(21) International Application Number: PCT/NL94/00213 (22) International Filing Date: 5 September 1994 (05.09.94) (30) Priority Data: 9301538 6 September 1993 (06.09.93) NL (71) Applicant (for all designated States except US): B.V. DESCOL KUNSTSTOF CHEMIE [NL/NL]; Duurstedeweg 33007, NL-7418 CK Deventer (NL). (72) Inventor; and (75) Inventor/Applicant (for US only): PILON, Jacob, Jan [NL/NL]; Reuvekamp 16, NL-7213 CE Gorssel (NL). (74) Agent: SCHUMANN, Bernard, Herman, Johan; Arnold & Siedsma, Sweelinckplein 1, NL-2517 GK 's-Gravenhage (NL).		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i> <i>In English translation (filed in Dutch).</i>	
(54) Title: METHOD FOR LAYING A SPORTS FLOOR AND SPORTS FLOOR OBTAINED WITH SUCH A METHOD			
(57) Abstract			
<p>A method for laying a sports floor comprises the steps of: 1) providing a resilient first layer (3), consisting substantially of a bonded rubber granulate, foam material or a mixture of both; 2) placing the said first layer on a substantially flat ground, for example sand-cement, concrete, asphalt, anhydrite, wood, fibre board or the like with interposing of an adhesive layer (2), for example glue or a double-sided adhesive foil; 3) providing a mat (5) which is adapted to absorb an optionally viscous, curable, plastic-containing liquid, which mat (5) comprises for example a non-woven, a woven material, a porous material, a material containing cohesive fibres, a honey-comb structure of the like; 4) placing this mat (5) on the first layer (3) with interposing of an adhesive layer (4), for example glue or double-sided adhesive foil; 5) applying to this mat (5) the said optionally viscous, curable, plastic-containing liquid, for example a two-component mixture, an aqueous dispersion of plastic or the like, such that the liquid entirely impregnates the mat; 6) causing the liquid to cure to form a force-distributing layer with a hardness of 50-90 Shore D; and 7) applying at least one covering layer (7) with a hardness of 70-90 Shore A.</p>			

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METHOD FOR LAYING A SPORTS FLOOR AND SPORTS
FLOOR OBTAINED WITH SUCH A METHOD

Sports floors are known in many embodiments. The object of the invention is to provide a method with which a sports floor can be manufactured with great uniformity which meets very high quality requirements with an optimal spring characteristic between point and surface elasticity. A further object of the invention is to provide a method with which the laying of a sports floor is considerably simpler and cheaper when compared with that of the sports floor systems known to date in the same quality class.

10 With an eye to the above the invention provides a method for laying a sports floor, comprising the steps of:

(1) providing a resilient first layer, consisting substantially of a bonded rubber granulate, foam material or a mixture of both;

15 (2) placing the said first layer on a substantially flat ground, for example sand-cement, concrete, asphalt, anhydrite, wood, fibre board or the like with interposing of an adhesive layer, for example glue or a double-sided adhesive foil;

20 (3) providing a mat which is adapted to absorb an optionally viscous, curable, plastic-containing liquid, which mat comprises for example a non-woven, a woven material, a porous material, a material containing cohesive fibres, a honey-comb structure or the like;

25 (4) placing this mat on the first layer with interposing of an adhesive layer, for example glue or double-sided adhesive foil;

(5) applying to this mat the said optionally viscous, curable, plastic-containing liquid, for example a two-component mixture, an aqueous dispersion of plastic or the like, such that the liquid entirely impregnates the mat;

30 (6) causing the liquid to cure to form a force-distributing layer with a hardness of 50-90 Shore D; and

(7) applying at least one covering layer with a hardness of 70-90 Shore A.

Known from EP-A-O 453 045 is a sports floor which comprises from bottom to top the following layers:

- 5 * at least one relatively thick layer of plastic foam;
- * at least one relatively thin force-distributing hard layer, for example of multi-ply or a hard plastic;
- * at least one hard elastic layer which is formed on the basis of rubber granulate and air cavities present
- 10 therebetween;
- * at least one thin polyurethane top layer with special friction properties.

The combination according to the invention is therefore not known from this European publication.

- 15 In a particular embodiment the method according to the invention comprises

(8) performing step (5) such that the liquid can cure to a hard polyurethane, an epoxy, an acrylate or other hard plastic.

- 20 The method preferably comprises

(9) performing step (6) such that a force-distributing layer is obtained with a hardness of 60-80 Shore D.

In a variant the method comprises

- (10) performing step (7) such that the covering layer
- 25 has a hardness of 75-85 Shore A.

Another variant is characterized by

(11) performing step (7) by applying a liquid curable to polyurethane and subsequently causing curing of this liquid.

- 30 The method preferably comprises

(12) arranging a wear-resistant top layer after step (7).

- The invention finally relates to a sports floor which is obtained with one of the methods according to the
- 35 invention.

The invention will now be elucidated with reference to the annexed figure. This shows in cross-section an embodiment of a sports floor according to the invention.

Laid on a concrete support floor 1 by means of a glue layer 2 is a layer 3 consisting in this embodiment of a granulate of rubber grains which are mutually adhered by means of a binding agent. A non-woven mat 5 consisting of fibres is laid onto this layer 3 by means of a glue layer 4. A liquid is subsequently poured onto this mat such that this liquid fully impregnates the mat. The liquid contains a plastic and is curable such that it can result in a cured plastic layer. It can consist for example of a two-component mixture or an (aqueous) dispersion of a suitable plastic. After the liquid has totally impregnated the non-woven fibre mat, there is a waiting period until the liquid is fully cured. This can take for instance several hours. On the thus obtained smooth upper surface of the layer 5, which can consist substantially of polyurethane, an epoxy or acrylate, a covering layer 7 is arranged by means of a subsequent glue layer 6. Instead of an adhesive layer use can also be made of a pouring material which can adhere directly to the layer 5 and can form a covering layer of the required thickness by curing. A wear-resistant top layer is then arranged on this covering layer.

The different layers are not drawn to scale. The top layer 8 in particular can be very thin. It can lend the upper surface of the sports floor the required colour and a required skid resistance.

The hard, force-distributing layer 5 has a hardness of 50-90 Shore D, preferably 60-80 Shore D.

The covering layer 7 has a hardness of 70-90 Shore A, preferably 75-85 Shore A.

CLAIMS

1. Method for laying a sports floor, comprising the steps of:

(1) providing a resilient first layer, consisting substantially of a bonded rubber granulate, foam material or
5 a mixture of both;

(2) placing the said first layer on a substantially flat ground, for example sand-cement, concrete, asphalt, anhydrite, wood, fibre board or the like with interposing of an adhesive layer, for example glue or a double-sided
10 adhesive foil;

(3) providing a mat which is adapted to absorb an optionally viscous, curable, plastic-containing liquid, which mat comprises for example a non-woven, a woven material, a porous material, a material containing cohesive fibres, a
15 honey-comb structure or the like;

(4) placing this mat on the first layer with interposing of an adhesive layer, for example glue or double-sided adhesive foil;

(5) applying to this mat the said optionally viscous, curable, plastic-containing liquid, for example a two-component mixture, an aqueous dispersion of plastic or the like, such that the liquid entirely impregnates the mat;

(6) causing the liquid to cure to form a force-distributing layer with a hardness of 50-90 Shore D; and

(7) applying at least one covering layer with a hardness of 70-90 Shore A.

2. Method as claimed in claim 1, **characterized by,**

(8) performing step (5) such that the liquid can cure to a hard polyurethane, an epoxy, an acrylate or other hard
30 plastic.

3. Method as claimed in claim 1, **characterized by,**

(9) performing step (6) such that a force-distributing layer is obtained with a hardness of 60-80 Shore D.

4. Method as claimed in claim 1, **characterized by,**

(10) performing step (7) such that the covering layer has a hardness of 75-85 Shore A.

5. Method as claimed in claim 1, characterized by,

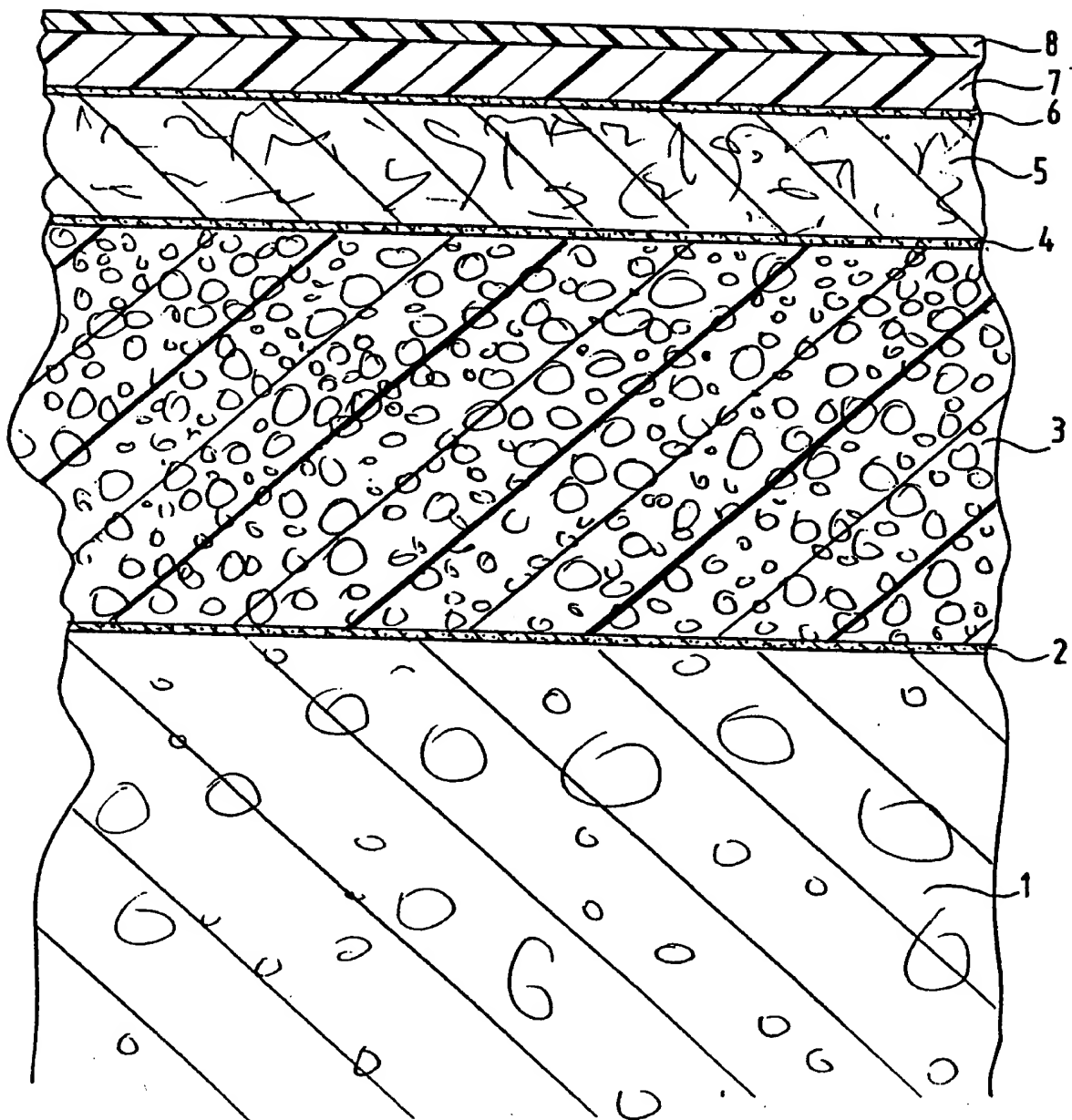
(11) performing step (7) by applying a liquid curable
5 to polyurethane and subsequently causing curing of this liquid.

6. Method as claimed in claim 1, characterized by,

(12) arranging a wear-resistant top layer after step
(7).

10 7. Sports floor obtained by applying a method as claimed in any of the foregoing claims.

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INTERNATIONAL SEARCH REPORT

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PCT/NL 94/00213

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 E04F15/18 A63C7/02 A63C9/02 B32B5/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 E04F E01C B32B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	GB,A,2 095 581 (SUMITOMO) 6 October 1982 see page 1, line 48 - page 2, line 28; figure	1,2,6,7
Y	EP,A,0 475 000 (HEIDELBERGER ZEMENT) 18 March 1992 see column 2, line 57 - column 4, line 36; figure 1	1,2,6,7
A	DE,A,26 58 730 (J. WILMS) 29 June 1978 see page 8, paragraph 3	5
A	US,A,4 800 119 (R. KOLAR) 24 January 1989 see column 3, line 57 - column 4, line 34; figure 1	3,4
A		1
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE,U,91 15 180 (OSTERWALD SPORTBODEN) 5 March 1992 see page 2, line 10 - line 23; figure -----	1
A	FR,A,2 681 884 (TARAFLEX) 2 April 1993 -----	

INTERNATIONAL SEARCH REPORT

I. Information on patent family members

International Application No

PCT/NL 94/00213

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